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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/648,796	08/27/2003	Koen Van Ingen Schenau	081468-0305697	3946

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EXAMINER	
NELSON, VIVIAN HSU	

ART UNIT	PAPER NUMBER
2851	

DATE MAILED: 11/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary	Application No.	Applicant(s)	
	10/648,796	SCHENAU, KOEN VAN INGEN	
	Examiner	Art Unit	
	Vivian Nelson	2851	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 August 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Takano (US #2002/0020344).

1. For claims 1, 11 and 19, Takano teaches a semiconductor manufacturing method, which inherently comprises a radiation system for providing a beam of radiation and being patterned by a mask; a substrate table for holding a substrate; and a projection system for projection the patterned beam onto a target portion of the substrate (see [0002]). Additionally, Takano's invention has a processing unit for processing the substrate before and after the substrate has been exposed to the projection beam (see [0002]); a transport unit for transporting the substrate between the substrate table and the processing unit (see Fig. 1); and a contamination control device for controlling the partial pressure of H_2O in the transport unit to be less than $1x10^{-2}$ mbar, the partial pressure of hydrocarbons in the transport unit to be less than $1x10^{-4}$ mbar, and the partial pressure of a mine bases in the transport unit to be less than $1x10^{-6}$ mbar. Since Takano provides a separate vacuum pump to each of the chambers in the invention (refer to Fig. 1) and teaches that the system is capable of producing a super-high vacuum of 10^{-6} Pa, or $1x10^{-8}$

mbar (see [0010]), then it is implied that Takano can reach any of the partial pressures of the applicant's invention.

2. With regards to claims 2 and 12, the apparatus of Takano shows that the contamination control device is configured to control the partial pressure of contaminants in the transport unit to be less than 1 mbar – see [0007] and [0022].

3. Regarding claims 3 and 13, Takano presents a contamination control device that controls the partial pressure of H_2O in the transport unit to be less than $1x10^{-5}$ mbar, the partial pressure of hydrocarbons in the transport unit to be less than $1x10^{-7}$ mbar, and the partial pressure of amine bases in the transport unit to be less than $1x10^{-7}$ mbar – see claims 1 and 11 above.

4. With respect to claims 4 and 14, the contamination control device of Takano substantially evacuates the transport unit as described in paragraphs [0036]-[0038]. See also Fig. 1.

5. For claim 5, at least one of a space surrounding the substrate table and a space surrounding the processing unit is substantially evacuated in Takano's invention – see Fig. 1.

6. Regarding claims 6 and 15, the contamination control device in Takano's apparatus has a gas supply for supplying a substantially contaminant-free gas to fill the transport unit as seen in Fig. 1 and in paragraph [0014]. In this case, Takano provides an inert gas such as nitrogen (N_2), which is inherently processed and purified to be contaminant-free when used in semiconductor manufacturing systems.

7. For claims 7 and 16, as treated above, Takano uses an inert gas in the operation of the presented apparatus, which includes pure nitrogen, a substantially contaminant-free gas. Specifying the use of inert gases by Takano implies that synthetic air and others can be used to minimize contamination of the substrate by gaseous particles – see [0019].

8. For claims 8 and 18, Takano's teaching implies that there is a projection beam of EUV radiation in the processing unit. As the title of Takano's invention suggests, a semiconductor manufacturing method would inherently include a light source in order to pattern a particular pattern onto the photosensitive layer of a substrate so that it can be etched – see [0036]. Further, it is well known in the art that ultraviolet light must be used in a high pressure, or evacuated, chamber so that the ultraviolet light wavelengths are not absorbed by the oxygen molecules present. Therefore, it is anticipated by Takano to use ultraviolet light as the radiation source within the system.

9. With regards to claim 9 and 17, Takano teaches that the processing unit is configured to apply a layer of resist to the substrate (see [0036]); bake the substrate to process the resist (refer to [0065]); cool the substrate after it has been baked (see Fig. 6); and develop the substrate with the resist (see again [0036]).

10. With respect to claim 10, Takano's transport unit is used to bake the substrate to process the resist; and cool the substrate after it has been baked – see treatment of claims 9 and 17 above.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vivian Nelson whose telephone number is 571.272.8552. The examiner can normally be reached on 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on 571.272.2258. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

vhn

Michael J. Tokar

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